EXHIBIT 2

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Definition of AMD

Advanced Micro Devices, Inc. (AMD) (NYSE:AMD) is a manufacturer of integrated circuits. It is the second-largest supplier of x86 compatible processors, and a leading supplier of non-volatile flash memory. It was founded in 1969 by a group of defectors from Fairchild Semiconductor, including the flashy Jerry Sanders.

AMD is best known for the Athlon and Duron lines of x86-compatible processors. Their more general co have been found in early Apple computers and numerous other electronic devices.

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History

The company started as a producer of logic chips in 1969 and entered the RAM chip business in 1975. Tl it introduced a reverse-engineered clone of the Intel 8080 microprocessor.

In February 1982, AMD signed a contract with Intel, becoming a licensed second-source manufacturer o 8088 processors. IBM wanted to use the Intel 8088 in its IBM PC, but IBM's policy at the time was to re two sources for its chips.

AMD later produced the 80286, or 286, under the same arrangement, but then Intel cancelled the agreem The growing popularity of the PC clone market meant Intel could produce CPUs on its terms, rather than

In 1991, AMD released the Am386, its clone of the later Intel 80386 processor. It took less than a year fc a million units. AMD followed in 1993 with the Am486. Both sold at a significantly lower price than the Intel challenged AMD's right to produce these chips in court, but ultimately lost its case. The two compe full cross-licensing agreements for patents and some copyrights from the very start: each partner can use technological innovations without charge. AMD's 386DX-40 was very popular with smaller, independen manufacturers, and the Am486 was used by a number of large OEMs, including Compaq.

During this time, AMD attempted to embrace the perceived shift towards RISC with their own AMD 29I (based on a bitslice computational model), and they attempted to diversify into graphics and audio device flash memory. While the AMD 29K survived as an embedded processor and AMD continues to make inc flash memory, AMD was not as successful with its other endeavours. AMD decided to switch gears and solely on Intel compatible microprocessors and flash memory. This put them in direct competition with I compatible processors and their flash memory secondary markets.

Their first completely in-house processor was the K5, launched very belatedly in 1995. The "K" was a re "Kryptonite". It was intended to compete directly with the Intel Pentium CPU, which had been released i architecturally it had more in common with the newly-released Pentium Pro than the Pentium or Cyrix's were a number of problems however; a confusing naming system was employed, with some chips being their true core speed, others with a PR number. More tellingly, the K5 couldn't match the 6x86's integer nor the Pentium's FPU performance. This, combined with the large die size and the fact that the design sc doomed the K5 to near-total failure in the market place. To its credit, however, the K5 didn't suffer from compatibility problems that the 6x86 did, and it didn't run as hot as Cyrix's chip.

In 1996, AMD purchased NexGen, Inc. and the rights to intellectual property behind their Nx series of x processors. In a year, they reworked the Nx686 microarchitecture and branded it the K6. NexGen's origin never made it to market. The redesign included a feedback dynamic instruction reording mechanism, and instructions. Most importantly AMD made it pin-compatible with Intel's Pentium, enabling it to be used i available "Socket 7" based motherboards. Like the Nx686 and Nx586 before it, the K6 translated the Pen compatible x86 instruction set to RISC-like micro-instructions. In the following year, AMD released the added a set of floating point multimedia instructions called 3DNow!, as well as a new socket standard cal Socket 7" both of which delivered enhanced performance.

In January 1999, the final iteration of the K6-x series, the 450 MHz K6-III, was extremely competitive w of the line chips. This chip was essentially a K6-2 with 256 kilobytes of full-speed level 2 cache integrate and a better branch prediction unit. While it matched (generally beating) the Pentium II/III in integer ope FPU was a non-pipelined serial design and could not compete with Intel's more advanced FPU architectu 3DNow! could theoretically compensate for this weakness, few game developers made use of it, the mos exception being ID Software's Quake 2.

Throughout its lifetime, the K6 processor came close, but never quite seemed to equal the performance o offerings from Intel. Furthermore, the motherboards that worked with the K6 were of varying quality, an process manufacturing difficulties which affected some shipments. AMD gained a reputation of making slower and less reliable "x86 clone" even though the performance difference was slight and the best K6 c motherboards were very reliable. This forced AMD into a position of selling their K6 processors at a sub discount versus Intel's P6 core based processors, the Pentium II and the Pentium III. Intel responded to A prices with the "Celeron" version of their Pentiums which were cheaper and slower in a partially successf capture marketshare.

In August of 1999, AMD released the Athlon (K7) processor. The Athlon had an advanced micro-archite towards overall performance. The timing of the release of this processor put it at a great performance adv Intel's P6 core based processors (which culminated as their mainline processor in the Pentium III.) The Ir was nearing the end of its life-cycle, while the Athlon was just getting started. Objectively, the Athlon ha clock" architectural performance versus the comparable Intel P6 core based parts, as well as higher frequ announced a 1GHz Athlon in early March 2000 and delivered them in that same month. Intel also annou Pentium a few days later, but did not ship them in significant volume until June of that year.

AMD also worked hard to increase the reliability and performance of motherboards for the Athlon. They the discipline and predictability of their manufacturing process. AMD also released a second line of proc on the Athlon core called the Duron which was a slower and cheaper version of the processor aimed at c against the still-shipping Celeron processor, providing some insulation for the Athlon against AMD's pri for only making cheaper and slower "Intel clones". The combination of these technical and marketing su

much to repair and bolster AMD's reputation for making high-performance CPUs that shipped and worke AMD continued to undercut Intel on price which helped them establish up to 20% market share.

In 2001, Intel released the Pentium 4 architecture (code-named Willamette) which had a radically differe microarchitecture than the Athlon or the P6 cores. While sporting a dramatically higher clock rate, the pe architectural performance of the Pentium 4 appears to be much slower than the Athlon or even Intel's own based processors. This lead some to believe that the Pentium 4 had higher performance because of its hig despite benchmark performance.

AMD responded with a new K7 core (code-named Palomino) which had superior memory pre-fetching n SSE (a set of floating-point extensions first featured on the Pentium III), an on-chip L2 cache and also re based on Model numbers which would approximately project the clock rate relative performance of these versus the earliest versions of the Athlon. The net effect of this was for the Model numbers to be more cc the Pentium 4's actual clock rate. For AMD processors of a given Model number, the comparable Pentiur corresponding clock rate showed rough parity on performance in a wide variety of benchmarks.

Intel countered AMD and its Athlon by ramping the Pentium 4 clock rate aggressively in its early lifetim Athlon was nearing its end of life, giving it a brief period of performance dominance. AMD responded w "Thoroughbred" Athlon XP, essentially a 130 nanometre version of the Palomino. AMD later introduced core, which increased the L2 cache to 512 KiB.

AMD64

AMD's future strategy is shown with the 64-bit AMD64 "Hammer" architecture. Whilst retaining suppor traditional x86 instruction set, the Hammer's native 64-bit mode is unique to AMD processors and incom the IA-64 architecture used in Intel's Itanium processor (Intel has since announced an extension to their X based on and compatible with AMD64 known as EM64T). As a relatively straightforward extension and basic x86 architecture, from a technical perspective AMD's conservative approach looks likely to produc initially, better price-performance than the Itanium and its successors.

This also gives AMD a marketing advantage in that it can leverage its ordinary 32-bit x86 processor marl upgrade and adopt its 64-bit processors without introducing risk to the existing software infrastructure. T for this processor to compete with Itanium head on in its intended markets (high-end 64 bit servers) rema

AMD released its first AMD64 processor (K8), the Opteron, in March 2003. The Opteron is designed for and server systems, including those containing more than one processor. However, Cray announced that use the Opteron as the basis for a top of the line super computer called "Red Storm", indicating that there no limit for what sort of applications the Opteron could be used for. AMD then released Athlon 64 and A September 2003 based on the same core architecture, which most benchmarks indicated both as performi better than the Pentium 4. However the Pentium 4 seems to have retained its performance advantage in st media processing applications. As of June 2004, there had been the 3200+, 3400+, 3700+, and 3800+ for 64. The AMD Athlon FX and the Opteron use a different numbering system. The Opteron includes three 100's, 200's, and the 800's, each of which are meant for different types of servers and workstations. The A uses numbers going up, starting with 51. The two models available for the high-end Athlon FX include th the FX-53. The Hammer core is very similar to the Athlon in basic microarchitecture, but includes 3 maj

1. The inclusion of the AMD64 instruction set;
2. A built-in DDR memory controller;

3. The HyperTransport point-to-point-bus.

These improve both the capabilities and performance of the Hammer versus the Athlon.

Geode

In August 2003 AMD also purchased the Geode business (originally the Cyrix MediaGX) from National Semiconductor to augment its existing line of embedded x86 processor products. During the 2nd Quarter planned to launch new low-power Geodes with speeds just over 1 GHz

See also

- List of AMD microprocessors
- List of AMD CPU slots and sockets
- Jerry Sanders

External link

Official info:

- AMD Corporate Website (*http://www.amd.com/*)

More on the Web:

- NerdyPC (*http://www.nerdypc.org*) - Advanced Micro Devices, Inc. article (*http://nerdypc.wikinerds.org/index.php/Advanced_Micro_Devices,_Inc.*)

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